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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/774,492

02/10/2004

Toshio Mizuki

829-621

8923

23117

7590

02/23/2005

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EXAMINER

ISAAC, STANETTA D

ART UNIT

PAPER NUMBER

2812

DATE MAILED: 02/23/2005

Please find below and/or attached an Office communication concerning this application or proceeding.



## Office Action Summary

Application No.

10/774,492

Applicant(s)

MIZUKI ET AL.

Examiner

Stanetta D. Isaac

Art Unit

2812

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 10 February 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 4-10 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 4-10 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.


### Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 10 February 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☒ Certified copies of the priority documents have been received in Application No. 10/294,760.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received

  
**LYNNE A. GURLEY**  
**PRIMARY PATENT EXAMINER**  
**TC 2800, AU 2812**

### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date <u>2/10/04</u> . | 6) <input type="checkbox"/> Other: _____  |



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### **DETAILED ACTION**

This Office Action is in response to the application filed on 2/10/04. Currently, claims 4-10 are pending.

#### ***Priority***

Acknowledgment is made of applicant's claim for foreign priority under 35 U.S.C. 119(a)-(d). The certified copy has been filed in parent Application No. 10/294,760, filed on 11/15/02.

#### ***Information Disclosure Statement***

The information disclosure statement (IDS) was submitted on 2/10/04. The submission is in compliance with the provisions of 37 CFR 1.97. Accordingly, the information disclosure statement is being considered by the examiner.

#### ***Specification***

The disclosure is objected to because of the following informalities: On page 2, of the PRELIMINARY AMENDMENT, a completion of the parent application data is required by including "now US Patent No. 6,828,655". Appropriate correction is required.



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The specification has not been checked to the extent necessary to determine the presence of all possible minor errors. Applicant's cooperation is requested in correcting any errors of which applicant may become aware in the specification.

### *Claim Objections*

Claim 9 is objected to because of the following informalities: On line 3, the unit for concentration should be "atoms/cm<sup>3</sup>". Appropriate correction is required.

### *Claim Rejections - 35 USC § 102*

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 4-10 are rejected under 35 U.S.C. 102(e) as being anticipated by Asami et al. US Patent 6,703,265.

Asami discloses the semiconductor method as claimed. See figures 1-26B, and corresponding text, where Asami teaches, pertaining to claim 4, a method of forming a semiconductor film, comprising the steps of: forming an amorphous semiconductor film **103** on a substrate **101** (glass) having an insulating surface (figure 7A; col. 14, lines 24-41); introducing a catalytic substance **104** (nickel acetate solution to form layer) for accelerating crystallization into a surface of the amorphous semiconductor film (figures 7B; col. 15, lines 66-67; col. 15, lines 1-



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11); applying first energy to the amorphous semiconductor film to crystallize the amorphous semiconductor film into a crystalline semiconductor film (figure 7C; col. 15, lines 12-17); and applying second energy (col. 15, lines 14-30) to the crystalline semiconductor film so that nearly all crystal orientation angle differences between adjacent crystal grains are present in the ranges of less than  $10^\circ$  or  $58-62^\circ$ , wherein the crystallinity of the crystalline semiconductor film is increased to be turned into a polycrystalline semiconductor film (figure 7D; col. 13, lines 25-52; col. 15, lines 22-29, Asami teaches that the acceptable crystal grain angle is  $5^\circ$  or less or  $10^\circ$  or less).

Pertaining to claim 5, Asami teaches a method, wherein the first energy is heat energy and the second energy is strong light (col. 15, lines 12-29).

Pertaining to claim 6, Asami teaches a method, wherein the energy density of the strong light is such that after irradiation of the strong light, the proportion of the crystal orientation angle difference between adjacent crystal grains of less than  $10^\circ$  or  $58-62^\circ$  is highest (col. 13, lines 25-52; col. 15, lines 22-29).

Pertaining to claim 7, Asami teaches a method, wherein the semiconductor film is made of silicon (col. 14, lines 24-28).

Pertaining to claim 8, Asami teaches a method, wherein the catalytic substance is a metal selected from the group consisting of Fe, Co, Ni, Cu, Ge, Pd, and Au, a compound containing at least one of these metals, or a combination of at least one of these metals and a compound containing at least one of these metals (col. 14, lines 65-67; col. 15, lines 1-11).



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Pertaining to claim 9, Asami teaches a method, wherein the concentration of the catalytic substance at a surface of the amorphous semiconductor film is greater than or equal to  $1 \times 10^{11}$  atoms/cm<sup>3</sup> and smaller than or equal to  $1 \times 10^{16}$  atoms/cm<sup>3</sup> (col. 16, lines 1-10).


Pertaining to claim 10, Asami teaches a method, wherein the strong light is excimer laser light (col. 15, lines 22-29).

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Stanetta D. Isaac whose telephone number is 571-272-1671. The examiner can normally be reached on Monday-Friday 9:30am -6:30pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Michael Lebentritt can be reached on 571-272-1873. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Stanetta Isaac  
Patent Examiner  
February 17, 2005

  
**LYNNE A. GURLEY**  
**PRIMARY PATENT EXAMINER**  
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